

cases exposed to tap water. To determine the presence of *Acanthamoeba* in tap water in Hong Kong, and of contamination of contact lens cases using a polymerase chain reaction (PCR) detection method.

Method: Tap water was collected from the bathroom sink of 100 households in Hong Kong and tested for the presence of *Acanthamoeba* by means of PCR amplification. Characteristics of homes were noted with respect to age, building type, and location. A sample of 100 contact lens cases were collected from regular users of contact lenses. The inner surface of the case was swabbed and tested for the presence of *Acanthamoeba* by PCR.

Result: Ten per cent of water samples were contaminated by *Acanthamoeba*. The risk for contamination was significantly higher in older properties, those located in the older urban area of Kowloon, and those in which the bathroom tap was served by a water tank. Only one contact lens case yielded *Acanthamoeba* and this subject admitted poor compliance with lens care routines.

Conclusions: Levels of *Acanthamoeba* detected using PCR were somewhat higher than previously reported in Hong Kong. Older plumbing and poorly maintained water storage tanks may increase the risk of *Acanthamoeba* contamination. Poor compliance with care of the lens case, allowing for the build up of biofilm may increase the risk of *Acanthamoeba* contamination of the case and possible *Acanthamoeba* keratitis.

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Molecular Diagnosis of *Babesia* Infection Among Rodents Collected from the Offshore Kinmen Island of Taiwan

C.M. Shih*, W.C. Yu, L.L. Chao

Department Parasitology & Tropical Medicine, National Defense Medical Center, Taipei, Taiwan

Babesiosis is an emerging tick-transmitted zoonotic infection caused by intraerythrocytic protozoan parasites of the genus *Babesia* and rodent-borne *B. microti* was recognized as the major causative agent for human infection. In order to realize the prevalence of *Babesia* infection among rodent hosts in the offshore Kinmen island of Taiwan. We conducted a whole-year survey to investigate the *Babesia* infection among rodent hosts and identify the *Babesia* genospecies in the Kinmen island. Genomic DNA were extracted from blood specimens of 283 rodents and further amplified by PCR using specific primers of Piro A/B and Bab 1–4, targeting a specific fragment of the gene encoding the nuclear small-subunit ribosomal RNA (18S rRNA) of *Babesia* spp. and *B. microti*, respectively. Results indicate that the seasonal prevalence of *Babesia* infection among rodent hosts was observed with an average infection rate of 25.4% (72/283), ranging from 9.5% to 50%, and *B. microti* was identified in 12.4% (35/283) of rodents. The higher seasonal prevalence was observed on April (50%) and May (43.8%). The highest infection rate was also observed at the district of Kinning township (33.3%). Thus, our results not only reveal the prevalence of *Babesia* infection among rodents in the Kinmen island but also pri-

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Reactivity of Antibodies to Hookworm Excretory-Secretory Antigens from Hookworm Infected Patients in Northern Nigeria

B.O.P. Musa^{1,*}, G.C. Onyemelukwe², A.A. Ahmad²

¹ Ahmadu Bello University Teaching Hospital, Zaria, Nigeria

² Ahmadu Bello University, Zaria, Nigeria

Background: Little is known about the antigens of hookworms or the possibility of stimulating protective immunity in infected patients. However, in order to develop effective antimicrobial therapy, it is necessary to understand the molecular nature of parasite antigens and host response. *Necator americanus*, which is prevalent in northern Nigeria, has been shown to express a range of excretory-secretory (ES) protein antigens. In this study, sera from patients infected with *Necator americanus* were tested at a 1:100 dilution against radiolabelled *Necator americanus* excretory-secretory products. The purpose was to determine whether the immune system of hosts harbouring *Necator americanus* is capable of identifying epitopes expressed by the parasites.

Methods: Serum was collected from 10 patients diagnosed as infected with *Necator americanus* on the basis of faecal egg counts. Sera from a pool of hookworm infected Australian aboriginals (Aussie pool) and normal human sera (NHS) from non-infected persons served as controls. Immunoprecipitation of antigenic polypeptides was done by the addition of 10 µL of serum from infected and non-infected individuals to 100 µL of 10mM Tris (pH7.4), 5mM EDTA, 0.9% (w/v) NaCl, 0.05% (v/v) Tween 20 containing 1.5×10^5 cpm of labeled ES products. Immune complexes were precipitated by incubation for 1 hour at 22 °C with protein A Sepharose, followed by extensive washing in the same buffer at 0 °C.

Results: Sera from infected Nigerian patients recognized and bound *Necator americanus* ES products and was precipitated. Response from the Nigerian sera against hookworm ES products showed great variability but was similar to that from the pool of hookworm infected patients from Australia. Normal human serum (NHS) showed a negative response to hookworm ES products.

Conclusion: Sera from hookworm infected patients is capable of reacting against defined hookworm antigens. The response elucidated however, is diverse in antigen recognition. This has implication for immunodiagnosis and for therapy.

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